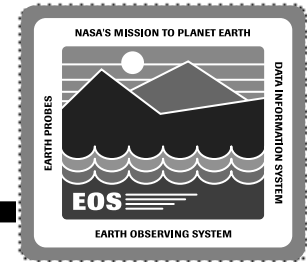


Planning and Scheduling

David Hyde

17 October 1995

P&S Introduction



Driving requirements

Overview

Design features

Analysis

COTS products

Hardware process mapping

Detailed design

- **Infrastructure**
- **Configuration tools**
- **General scheduling tools**
- **Flight operations tools**

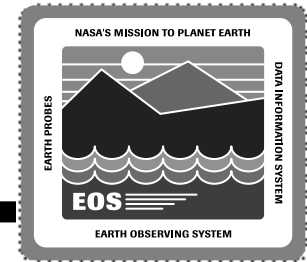
Guy Swope

Steve Pawlish

Ken Cockerill

Tony Cetuk

P&S Driving Requirements



Produce a conflict-free schedule of activities for

- **Subsystem resources**
- **Instrument resources**
- **Ground resources**

Interactive constraint notification

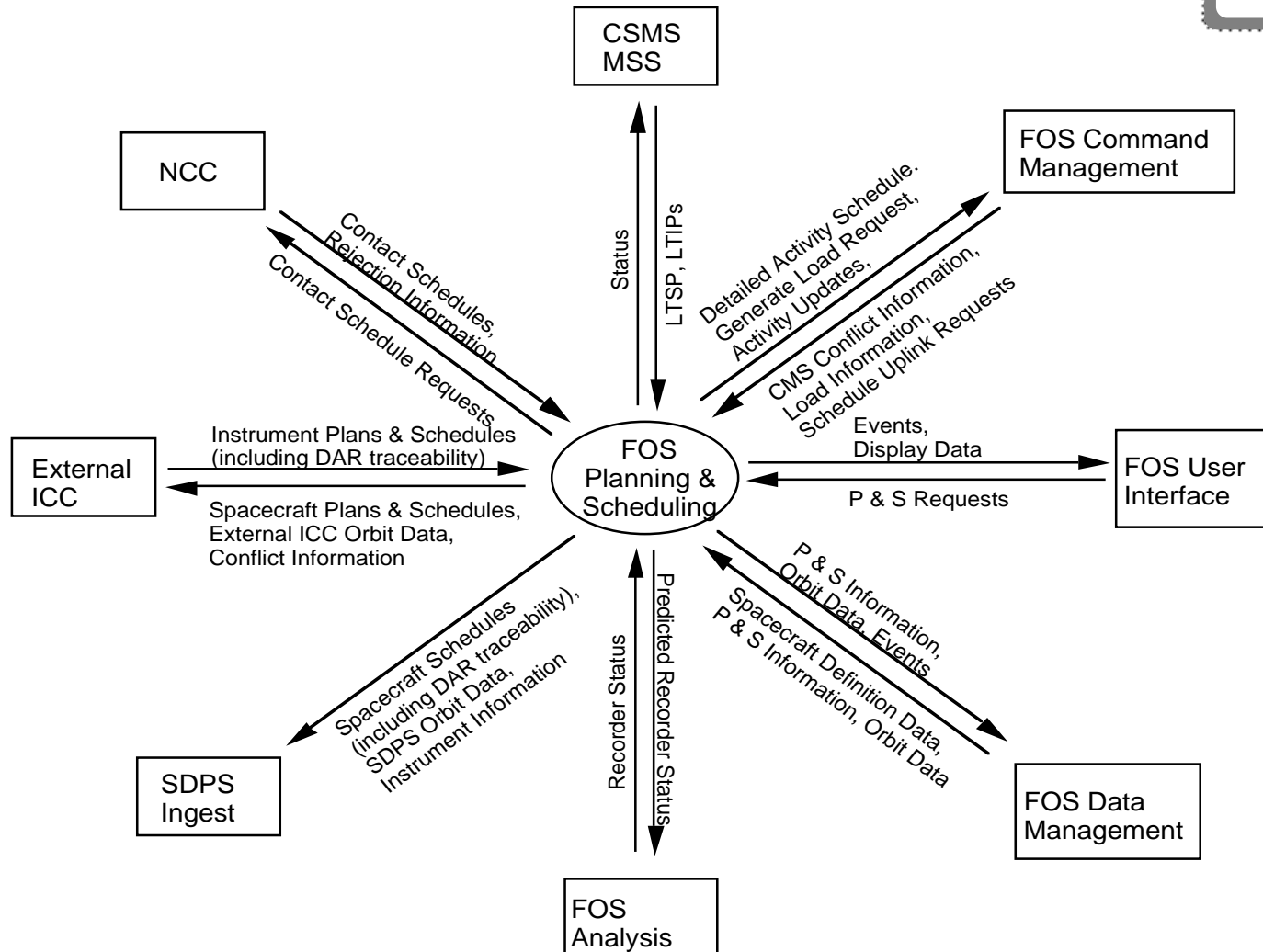
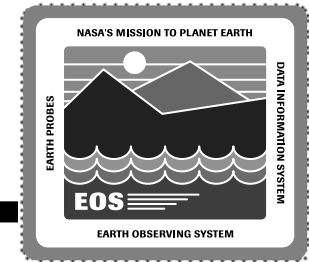
Distributed system

- **Provides global visibility to modifications**

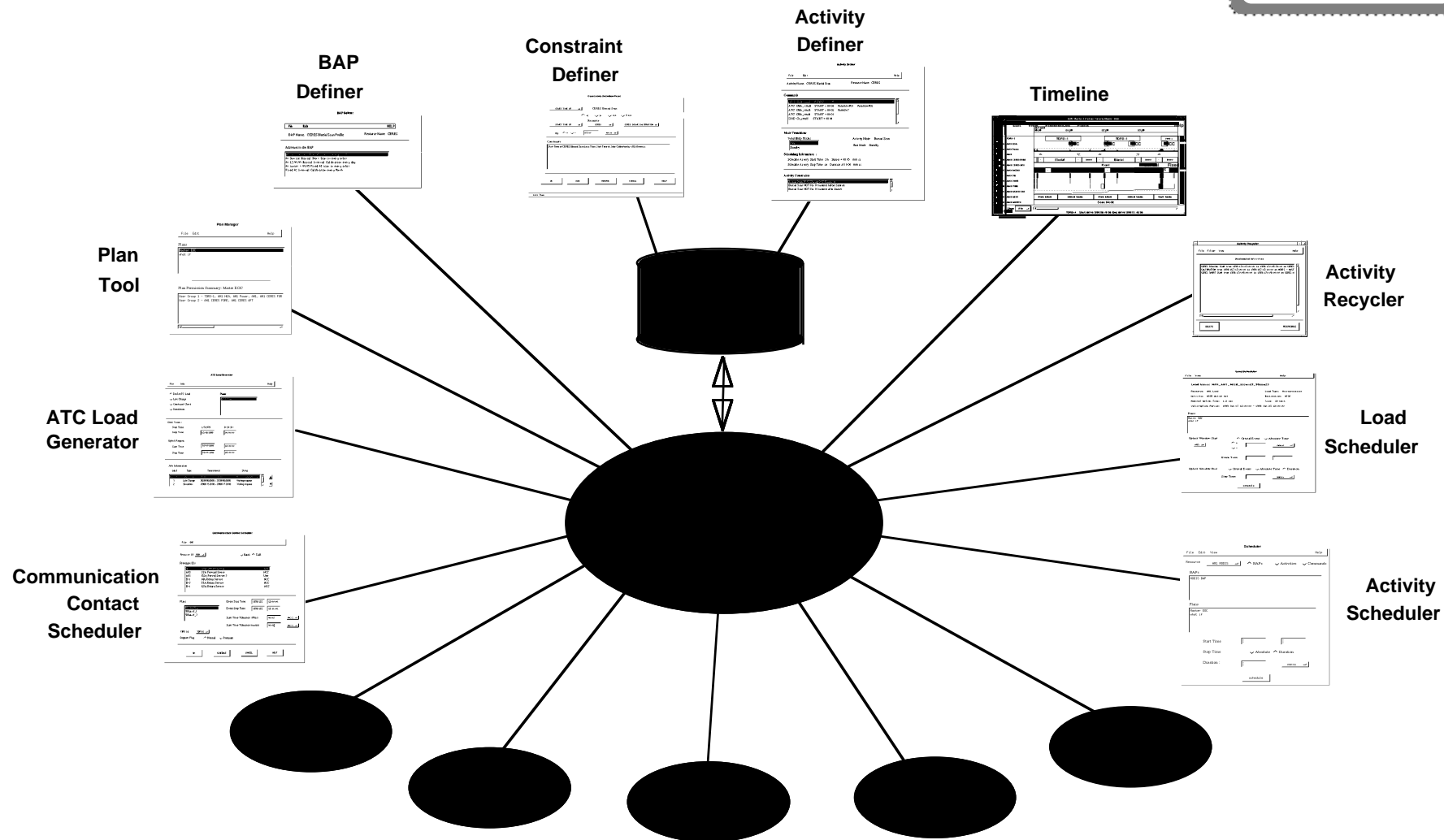
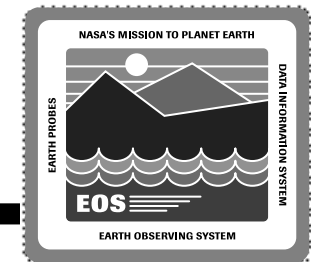
Support multiple platforms

- **SUN, HP, DEC Alpha, SGI, IBM**

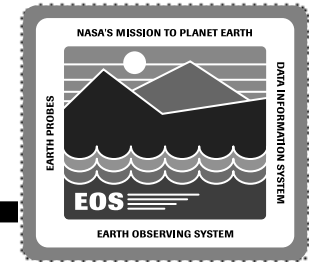
Planning & Scheduling Context Diagram



P&S Design Overview



P&S Design Features



Modular toolset

- **Easy to add process to support unique future mission requirements**

Extensible object-oriented design

- **Easy to modify for future missions**

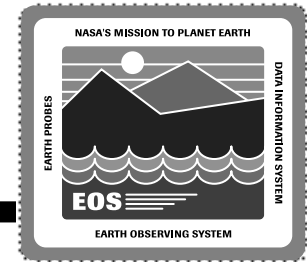
Based on robust, tested framework

- **Framework used on ten other missions**

Distributed scheduling

- **Supports geographically distributed scheduling teams**

P&S Analysis



UPS trade results

- **UPS chosen as front end to NCC**
 - **Eliminates need for NASCOM block formatting**

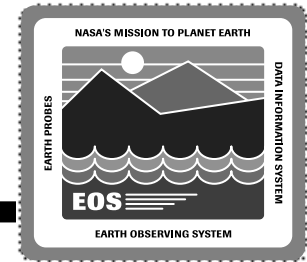
FORMATS trade results

- **FOS will interface directly with FDF and not use FORMATS**
- **FDF rehost eliminates need for data format translation**
- **DMS front end will process incoming data**
 - **Simple SQL provides validation needed**

Constraints trade results

- **Custom solution chosen over ILOG and PARR (GFE)**
 - **Simple and extensible solution**
 - **COTS products difficult and costly to integrate**

P&S Analysis (cont.)



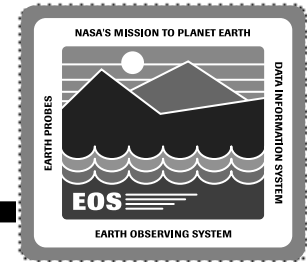
Resource Model process distribution

- Load test of prototype revealed performance bottleneck
- Data Distributor process added to design
 - Provides complete flexibility
 - Frees Resource Model process for scheduling

Scheduling access

- Design simplified
 - Plan Window Manager tool eliminated
 - Timeline and Plan Tool provide accesses

COTS Products



DELPHI

- **Planning and scheduling framework class library**

Sybase

- **Database for persistent storage**

DBTools

- **Object-oriented abstraction for database**

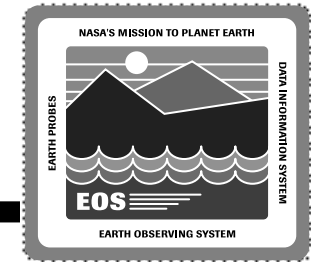
Netscape

- **HTML browser for help screens**

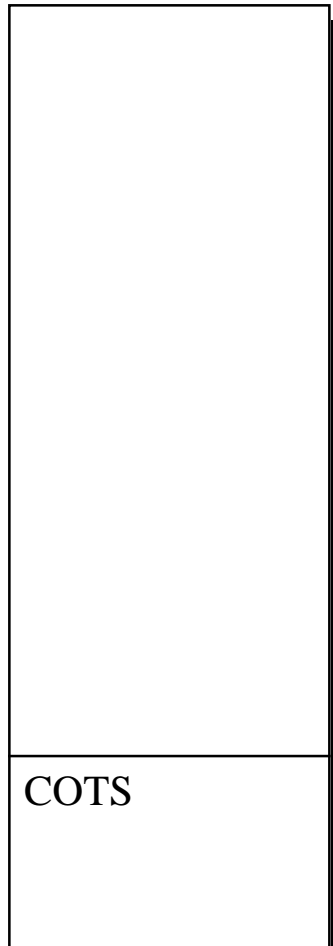
UPS (GFE)

- **Handles the creation and transmission of NASCOM blocks**

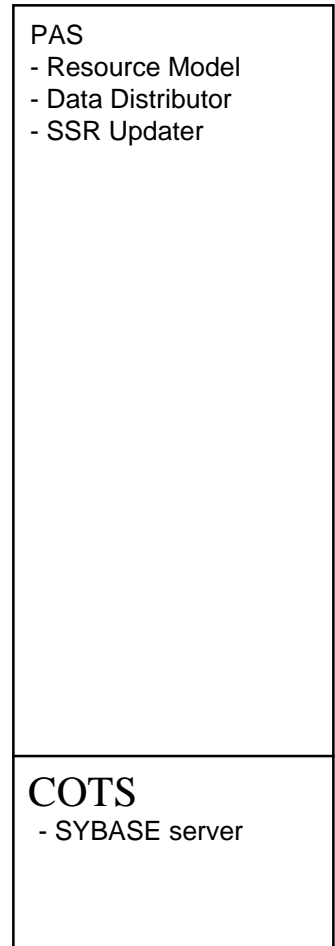
Hardware Map



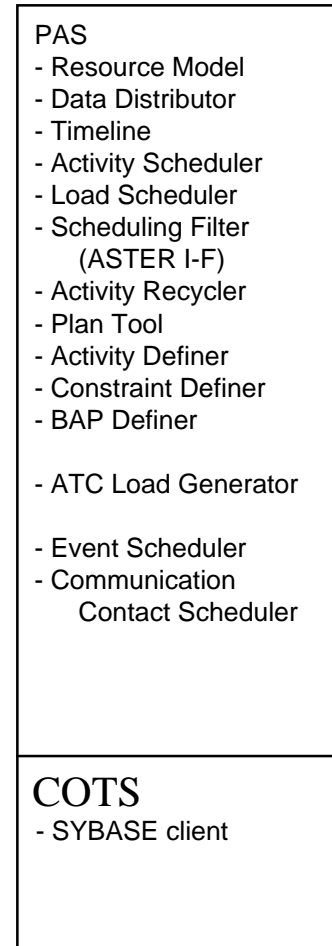
Real-Time Server



Data Server



User Station



IST

